in writing for resolution. 2. The structural design is based only on the structure in its completed state. The Contractor and his subs shall take whatever precautions are necessary in their opinions, including but not limited to temporary bracing, shoring and needling, to withstand all horizontal and vertical loadings that may be encountered during the construction and prior to

3.All written dimensions shall take precedence over the scale shown on plans, sections, and details. Do not scale the

4. Typical details and notes on these sheets shall apply unless specifically shown or noted otherwise. Construction details not fully shown or noted shall be similar to details shown for similar conditions. Typical details are not cut on drawing plan sheets, but shall apply at all applicable locations. Typical details also apply to items not shown on the structural drawings, which include but are not limited to mechanical openings for which structural typical detail framing applies and top of CMU wall bracing for CMU walls shown on the architectural drawings. Contractor shall coordinate between trades and make provision to obtain and install structural features per the typical details as required by other trades.

5. All work or construction shall comply with all applicable building codes, regulation and safety requirements. 6.Principle curbs, slabs, and openings are shown on the structural drawings. See architectural, mechanical, plumbing, and electrical drawings for sleeves, curbs, inserts, other openings, and slab depressions not shown. The contractor shall provide for all openings, curbs, and slab depressions, whether shown on the structural drawings or not. Size and location of openings shall be verified by the mechanical contractor. Any deviation from openings shown on the structural drawings shall be brought to the Engineer's attention for approval prior to fabrication or installation of structural members. 7. Where specifications and drawings contradict, the more stringent shall govern.

8. It shall be the Contractor's sole responsibility to design and provide adequate shoring, bracing, and framework, as required for the protection of life and property during the construction of this building. Excess load capacity of slab shall not exceed loads equivalent to the design superimposed loads less construction dead and live load, partition load, and any other load not in place at the time of shoring.

9. The Contractor shall be solely responsible for all excavation procedure including lagging, shoring, and protection of adjacent property, structures, streets and utilities in accordance with all local, state and federal safety regulations

10.Cantilever and basement retaining walks) have not been designed for surcharge loading associated with construction traffic behind the wall. The Contractor and his subs shall provide adequate temporary bracing to resist increased lateral loads on the walks) associated with their means and methods of construction.

11. Construction loads shall not exceed the design superimposed live load capacity of structural elements. 12.Design of crane foundations and crane openings in the structure are the responsibility of the Contractor. The design documents must bear the seal of a registered professional engineer in the state of Pennsylvania and all necessary calculations shall be submitted to the Architect and Engineer for review prior to fabrication. The Architect's review is not to imply acceptance of responsibility for design adequacy. This is the Contractor's responsibility.

13.Information shown in the structural drawings that is not specifically designed by the structural engineer is shown schematically for information purposes only. The Contractor shall coordinate with the appropriate drawings for the full intent of the information referenced.

EXISTING CONDITIONS

1. All dimensions and elevations of existing structures shown on the drawings are obtained from available sources, and are not guaranteed to be true and exact. The General Contractor shall verify these dimensions and elevations by actual field measurements prior to fabrication of any materials and start of Work, and report any discrepancies to the

2. Field verification measurements shall be completed sufficiently in advance of the fabrication and erection schedule so as not to impede the progress of Work. All delays or costs caused by improper or late field verification shall be the

3.The Engineer of Record will not review or approve shop drawings prior to the field verification of existing dimensions. 4. The structural design is based only on the structure in its completed state. The Contractor and his subs shall install any new structure in or attached to existing structure using whatever means and methods are necessary in his opinion. Because the documents show the structure in its completed state, means and methods of installation is the Contractor's sole responsibility. If the chosen installation methods require additional work not shown on the construction documents, it is the Contractor's responsibility to include it in his scope of work and/or bring it to the attention of the Architect/Engineer for review at the time of pricing the work. This includes but is not limited to additional demolition and rebuilding required in order to place new structure.

5. Existing structural framing and foundations shall not be disturbed unless specifically noted otherwise on the drawings. 6.If field conditions differ from those shown on drawings, Contractor shall notify architect/engineer in writing before proceeding with installation/erection. Notification shall occur sufficiently in advance of the Work to allow Engineer to

7. Shoring required for demolition of existing structures or installation of new structures shall be the Contractor's responsibility. Shoring calculations and drawings shall be signed and sealed by the Contractor's engineer in the state of Pennsylvania and shall be submitted to the Engineer of Record for review.

8. Contractor shall field verify dimensions and reinforcing of all existing structural elements to which new structure is directly attached. This is includes but is not limited to existing beams, columns, and foundations to which new canopy structure is attached. All testing methods shall be non destructive in nature. Provide test results to the Architect/Engineer in advance of shop drawing submissions. See also note 2 this section.

VA FORM 08-6231

1. Remove existing construction, as shown on plans, or as required to install new construction. See sections and details for extent of structure to be removed. Rebuild beam bearing, jambs, etc. to match existing, and in accordance with architect's approval.

2.Existing structural framing shall remain unless specifically noted on plan to be removed.

3.All shoring, needling, underpinning, etc. shall be as required to support the existing structure. The Contractor shall examine the existing structure to determine the extent of necessary shoring, needling, and underpinning. The capacity and method used for shoring, needling and underpinning shall be the responsibility of the Contractor.

4. If field conditions differ from those shown on drawings, notify architect/engineer before proceeding with demolition. Notification shall occur sufficiently in advance of the Work to allow Engineer to review.

5. Shoring required for demolition of existing structures or installation of new structures shall be the Contractor's responsibility. Shoring calculations and drawings shall be signed and sealed by the Contractor's engineer and shall be submitted to the Engineer of Record for review.

FOUNDATIONS [SPREAD FOOTINGS]

1. Foundation design and subsurface information is not available on existing documents. 2.All surface fill materials, consisting of gravel, brick fragments, concrete chips and wood chips shall be removed in the

regions of all foundations in accordance with the geotechnical recommendations. 3.Slabs-on-grade shall rest on a minimum of 6" of granular fill, compacted to at least 95% of the maximum density as defined by the ASTM D1557 Modified Proctor Test. Fill under the slabs-on-grade should be placed only after all unsuitable existing fill has been removed and the subgrade proof rolled under the direction of the Inspection Agency. All fill material shall be placed in 8" lifts and compacted to 95% maximum density as defined by the ASTM D1557

4.All footings have been designed as spread footings to bear on soil based on an assumed minimum net allowable bearing capacity of 3000 PSF. The Testing and Inspection Agency shall verify soil bearing capacity at each footing prior to installation of footing. Notify Engineer of any variation from anticipated bearing capacity for appropriate redesign or

5. The bottoms of all exterior footings shall be 3'-O" minimum below finished grade. The top of all interior footings shall O'-8" minimum below finished floor elevation, unless noted otherwise on the drawings. 6.Edges of footings shall not be placed at a greater than 1 (vertical) to 2 (horizontal) slope with respect to any

adjacent footing or excavation. 7. All adjacent column footings that abut shall be separated by a paper joint.

8. Backfilling against walls shall not be done until concrete and/or masonry has been cured to attain sufficient strength (7 days minimum) and walls are properly shored and/or braced. Backfilling against basement walls shall not be done until the floor slabs at top and bottom of walls have been placed and have cured. Backfill foundation walls with earth on both sides of the wall by alternately placing backfill on each side so that height of backfill does not differ by more

than 1'-6" from other side. 9. The contractor shall safequard and protect all excavations, and all excavations shall be kept free of accumulated

FOUNDATION CONCRETE

1. All concrete shall be normal weight concrete having a minimum design compressive strength at 28 days as follows: a. All concrete, including slabs, piers and footings unless noted otherwise 4000 PSI

b. New loading dock piers, slabs and walls (excludes footings) 5000 PSI 2. The following welded wire reinforcement shall be used for areas specified below, unless noted otherwise on the drawings:

4 inch slab-on-grade 6X6 - W1.4XW1.4

5 inch slab-on-grade 6X6 - W2.0XW2.0

6 inch slab-on-grade 6X6 - W2.9XW2.9 3. Minimum steel protection, unless otherwise shown, shall be 1" for interior face of walls, 2" for exterior face of walls. 3" for footings and other structural concrete deposited against ground, 2" for concrete permanently exposed to

4. Grade beams shall be formed on the sides with 2" minimum cover. Bottom of grade beams need not be formed. Provide 3" minimum cover at bottom of grade beams.5. All structural members shall be poured to their full depths in one operation. Construction joints, such as day's pour joints, shall be located in the middle third of the span, main reinforcing to run through the joint, key and roughen joints to expose aggregate. Contractor shall submit drawing

indicating construction joint locations for approval. 5. Excavations shall be kept free of accumulated water. No concrete shall be placed in water.

6. All slabs—on—grade shall have thickenings, depressions, openings, slopes, etc. as shown or as required by various trades. 7. Provide vertical dovetail inserts 2'-0" o.c. with anchors in all concrete surfaces faced with brick which are 1'-3" or greater in height.

8. Provide water stops at locations shown on drawings. 9. For additional concrete work not shown on Structural Drawings, see Architectural Drawings. All concrete within the building footprint shall be reinforced, unless specifically noted otherwise. See typical details for concrete items/reinforcing not shown on structural plans. If no reinforcing detail is shown for an item, contact the Engineer for

review prior to work. 10. All permanently exposed loading dock concrete, including slabs, piers, and walls shall contain DCI or DCI-S corrosion inhibitor as manufacturered by W.R. Grace or approved equal.

SUPERSTRUCTURE CONCRETE

1. New concrete that is not on grade shall be of the type and minimum design strength as follows:

a. Slab on metal deck — structural lightweight concrete b. Infill slabs and existing slab patch locations — structural normal weight concrete 4000 PSI

2. Minimum steel protection, unless otherwise shown, shall be 3/4" for slabs, 1" for interior face of walls, 2" for exterior face of walls, 1-1/2" for beam stirrups and column ties, 2" for vertical column reinforcing.

3.All structural members shall be poured to their full depths in one operation. Construction joints, such as day's pour joints, shall be located in the middle third of the span, main reinforcing to run through the joints, key and roughen joints to expose aggregate. Contractor shall submit drawing indicating construction joint locations for approval. 4. No openings shall be made in any structural member, unless specifically shown on the drawings, without approval from the engineer. No sleeves shall be placed horizontally or vertically in beams or joists, unless specifically shown on the

drawings, without approval from the engineer. 5. General contractor shall submit a coordinated drawing showing all sleeves, openings, block outs, etc., as required by all trades, for approval, prior to placing concrete in that area.

6.All slabs shall have thickenings, depressions, openings, slopes, etc. as shown herein or on Architectural, Mechanical,

7. For all superstructure slabs where not otherwise specified use style GXG-W1.4XW1.4 WWR. This includes non-structural topping slabs, infill slabs, and existing slabs to be patched exceeding 4" in width.

8. Provide vertical dovetail inserts 2'-0" o.c. in all concrete surfaces faced with brick which are 1'-3" or greater in

9. Provide water stops at locations shown on drawings.

10. For additional concrete work not shown on Structural Drawings, see Architectural Drawings. All concrete within the building footprint shall be reinforced. See typical details for concrete items/reinf. not shown on structural plans. If no reinforcing detail is shown for an item, contact the Engineer for review prior to work.

SUPERSTRUCTURE CONCRETE (Supported by Metal Deck)

1. All concrete on metal deck shall be lightweight structural concrete having a minimum design compressive strength of 3500 PSI at 28 days.

2. Provide GXG-W1.4XW1.4 welded wire reinforcement in all concrete slabs on metal deck unless noted otherwise. 3. Mesh shall be draped

4. The contractor shall allow for 3/4" additional concrete during placing due to deflection of structure. 5. The contractor shall deposit all concrete, during placing in such a manner as not to overload the metal deck. 6.All slabs shall have thickenings, depressions, openings, slopes, etc. as shown herein or on Architectural, Mechanical,

7. Horizontal unit of placement for concrete on metal deck shall not exceed 90 feet in any direction.

MISCELLANEOUS-CONCRETE

on-center vertically.

1. Contractor shall verify conditions in the field and immediately notify engineer or architect of any conditions not as assumed. He shall take field measurements as required and be responsible for same.

2.Contractor shall coordinate with all related trades for detailing, fabrication and erection prior to submitting shop 3.All Structural work shall be coordinated with Architectural, Mechanical, Electrical, Plumbing, etc. requirements.

duct openings, etc. as required for all trades for Structural Engineer's approval. This shall be done a minimum of two weeks prior to pouring affected slabs, beams, columns or footings. 5. No openings shall be made in any existing or new structural member unless specifically shown on the structural drawings

4. General Contractor to provide appropriate number of copies of coordinated drawings showing all sleeves, conduit boxes,

approved by the Structural Engineer 6. No conduits shall be run in the new slabs.

7. Support details for elevator and M/E/P equipment are based upon manufacturer's information. Contractor shall coordinate requirements of actual equipment supplied with details and shall provide any additional framing.

1. Masonry work shall comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures" 2. Hollow concrete masonry units shall be 2-cell block, conforming to ASTM C90, normal weight

3. Reinforced masonry walls shall have a minimum f'm=2500 PSI at 28 days.

4. All mortar shall conform to ASTM C270, type S. 5. All reinforcing shall be deformed steel bars conforming to ASTM AG15, Grade GO, with a yield strength of GO,000 PSI Cdesign stress equal to 24,000 PSI). Provide masonry tension lap splices per ACI-530 and applicable building

codes and masonry lap splice lengths in the typical details. 6. Masonry reinforcement cover shall be 2" minimum for bars within walls exposed to earth or weather and 1 ½" minimum for all other bars. Where only 1 bar per cell is specified, center bar in cell unless otherwise noted.

7. All masonry walls shall be continually reinforced with truss type horizontal joint reinforcing with a minimum wire size of 0.148" (9 gauge wire) at 16" on-center vertically (u.n.o. on drawings). Provide additional pieces immediately above and below openings, extending 2'-0" minimum beyond opening. Provide prefabricated 'T' and corner pieces at all intersecting walls and corners. Lap joint reinforcing 6" minimum. All 12" CMU shall have horizontal joint reinforcing spaced at 8"

8. All mortar joints, including cross webs, shall be filled 100% solid.

9. Reinforced masonry cells shall be filled solid with grout conforming to ASTM C476 with a minimum compressive strength of 3000 PSI, when tested in accordance with ASTM C1019.

10. Grout walls solid at all changes in bond, unit thickness, below finished grade, at all reinforced cells, and as otherwise noted. Fill cores solid with grout a minimum 24" below bearing plates, beams, lintels, posts and similar items. Grout cores solid 24" deep at locations where post installed wall anchors are required. Contractor shall coordinate with all trades. 11. Inspection holes shall be located at the bottom inside face of all grout filled block to insure that grout has been placed throughout all masonry voids. Inspection holes shall be $1 \frac{1}{2}$ diameter holes located at each grout pour when

the grout pour height exceeds 5'-0". 12. Provide control joints in all above—grade exterior masonry walls at 1.5 times the wall height not to exceed 25'—0" on center, unless noted otherwise. Provide control joints in all interior masonry walls at 30'-0" on center, unless noted otherwise. See Architectural drawings for control joint details and locations.

13.All masonry walls shall be braced at the top to the structure per the structural typical details unless specifically noted otherwise. This applies to all masonry walls shown on the architectural and/or structural documents and also walls shown on the architectural but not the structural documents. 14. Where Contractor designed steel framing bears on masonry walls, provide steel bearing plates as required such that the bearing stress does not exceed 0.25 x f'm for ACI 530-08.

15. All masonry shall be laid in a running bond pattern, unless otherwise noted. 16. For IBC 2009: The minimum Quality Assurance program for masonry shall meet Special Inspection Level 2 Quality

Assurance per IBC.

1. Provide lintels or sleeves at all penetrations in new + existing masonry walls at doors, windows, mechanical services, electrical services, equipment, etc. not specifically shown on the drawings, in accordance with the lintel schedule.

2.All lintels shall have 8" minimum bearing each end, unless noted otherwise, and shall be set on a full bed of mortar. 3. Contractor shall shore all lintels as required to prevent rotation during construction.

4. Contractor shall coordinate size and type of lintel with Architectural, Mechanical, Electrical and Plumbing Drawings. 5. All lintels on exterior walls shall be hot-dipped galvanized.

6.Contractor shall provide shoring and/or bracing of existing walls as required to install new lintels. Method of shoring and/or bracing shall be the responsibility of the contractor. See architectural drawings for locations of new openings in existing masonry walls.

LINTEL SCHEDULE (Non-Bearing or Partition Walls) Provide one angle for each 4" of masonry thickness as follows: Openings to 3'-0": L $3-1/2 \times 3-1/2 \times 1/4$ Openings 3'-0" to 5'-0": L 4 X 3-1/2 X 5/16 LLV Openings 5'-1" to 8'-0": L 6 X 3-1/2 X 5/16 LLV Provide 6" minimum bearing each end of angle lintel.

For 6" masonry walls provide lintels as follows:

Openings to 3'-0": (2) L 3-1/2 X 2-1/2 X 1/4 LLV Openings 3'-0" to 8'-0": (2) L 3-1/2 X 2-1/2 X 5/16 LLV Provide 6" minimum bearing each end of angle lintel.

Where required for architectural reasons, or as noted, provide precast concrete lintels for interior walls of same

texture as adjacent masonry as follows: Openings to 7'-0": 4" Walls - 4" X 8" w/ 1-#4 T+B Openings to 7'-0": 6" Walls - 6" \times 8" \times 1-#5 \times 8 Openings to 7'-0": 8" Walls - 8" X 8" w/ 2-#4 T+B Openings to 7'-0": 12" Walls - 12" X 8" w/ 3-#4 T+B Provide 8" minimum bearing each end of precast concrete lintel.

For larger openings, see plan for lintel size. In cases where lintel size is shown on drawings, size on drawings takes precedence over general notes. Provide 5/16" suspended plate 4" minimum below bottom flange of beam.

STRUCTURAL STEEL

1. All structural steel work shall conform to AISC specification for structural steel for buildings, and AWS D1.1, latest 2.Structural steel shall conform to the following ASTM designations:

W shapes, Columns ASTM A992 or ASTM 572-50 S, M, and HP shapes ASTM A36 Column Base plates, Web Doubler PlatesASTM A992 or ASTM 572-50 Channels, Tees, Angles, Bars, and Plates ASTM A36 HSS rectangular or square section ASTM A500-GR.B (Fy = 46 ksi) HSS round ASTM A500-GR.B (Fy = 42 ksi)

Steel Pipe ASTM A53-GR. B (Fy= 35 ksi) Anchor Rods F1554, Gr. 36 typical, Gr. 55 where noted

3.Bolts shall conform to the following ASTM designations: High strength bolts - A325

Standard fasteners - A307 4.All welding electrodes shall conform to the E-70 series of the specifications for mild steel arc welding electrodes ASTM A233, latest edition.

5. All bolts shall be 3/4" diameter, open holes 13/16" diameter, unless otherwise shown or noted.

6.All shop connections shall be high strength bolted or welded. 7.*All field connections shall be high strength bolted except where details indicate welding. [Standard fasteners may be

used in welded connections which require adjustment prior to welding such as suspended lintels and wind bracing]. 8.All connections of beams to columns, beams carrying columns or struts, and main beams supporting stairs shall be bolted with high strength bolts. High strength bolted connections are to be indicated on erection drawings thus whether shown

9. All welding shall be done by licensed welders and shall be inspected by an approved testing agency which shall issue an affidavit that all welding has been inspected and found to be in conformity with details.

10.No penetrations are permitted through structural steel members unless indicated on Structural Drawings or approved

11. Approval of the Engineer shall be mandatory for the use of a cutting torch in the field.

12. During erection, structural steel frame shall be adequately braced in all lines, two ways. 13. Steel connections for beams, vertical trusses, moment frames, custom trusses, and column splices not detailed on the drawings shall be designed by the structural steel fabricator. Beam connections shall develop the unfactored end reactions in kips for each size group provided in the table below, unless otherwise shown thus (Vxx) on the drawings. Reactions provided in the table below and on the drawings are not factored. Note number of bolts shown are the

minimum required, and do not reflect the total bolt number required to achieve the reaction capacity. Connections shall be designed per AISC. Size Shear Rxn (k) WG, W8 W10 and larger 10

14. The structural steel fabricator shall provide certification by a professional engineer, registered in the state of Pennsylvania that the connection design is in accordance with all applicable codes and specifications. 15. All steel work shall have one shop coat of paint except that steel receiving spray—on fireproofing, within 2" of weld,

with machined surface, or completely encased in concrete. In these cases steel shall be left unpainted. 16. Milled or butt welded stiffeners shall be provided on girders under all column concentrations and over all columns. 17. Where web of beam cannot pass a column flange, bolts connecting plate to beam shall be designed for shear and moment and connection of plate to column shall be designed for shear only. 18.All connections of beams and girders to tops of columns shall be framed unless they are cantilevers, in which case

they shall run over top of column as per typical details. 19. All grout under steel plates shall be non-shrink "pre-mix" type and shall have minimum compressive strength per the

20. For all miscellaneous steel construction not shown on Structural Drawings, see Architectural Drawings. 21. Shop drawings shall include erection plans, erection details, fabrication details, member sizes, dimensions, plate sizes,

weld symbols, bolt size and type, etc. 22. Where not indicated on plan, cantilever beams shall be the same size as the cantilever backspan. 23. Provide framed openings in composite or roof deck material per the structural typical details where openings are indicated on the structural, architectural, and mechanical drawings.

24.All steel exposed to weather shall be not dipped galvanized. 25.Structural steel require to frame areas to be coordinated by the Contractor shall not be considered 'For Construction" until after all coordination has been completed by the Contractor. Areas that may require Contractor coordination include areas with any items that are to be coordinated or selected by the Contractor, including elevators, mechanical equipment framing, dunnage support, equipment screens, high density filing support, etc. Structural steel materials for these areas shall not be ordered until the coordination has been completed by the Contractor.

METAL DECKING

1. Fabrication and erection of all metal deck shall conform to the latest edition of Steel Deck Institute Specifications. 2. Metal decking shall be made of steel conforming to ASTM A653 SQ Grade 33 with coating designation G60 at new elevator roof, and G9O at roof for galvanized deck in accordance with ASTM A924 at canopy roof. Deck shall have a minimum yield strength of 33,000 PSI.

3.All metal deck has been designed to be continuous over 3 spans minimum, and shall bear at least 2" on steel supports. For one or two span conditions, the contractor shall provide shoring as required, or furnish heavier gauge deck as required to support all the applicable loads. Contractor shall submit alternate for approval. 4.Deck shall be welded to supporting steel at ends of units and at all intermediate supports in accordance with

manufacturer's recommendations. Side laps shall be welded or screwed at 3'-0" o.c. maximum for spans over 5'-0". 5. Elevator roof composite metal deck shall be galvanized. In no case shall unshored metal deck spans exceed the manufacturer's published recommendations or deflection criteria of span divided by 240. Metal deck shall provide the following minimum properties:

Elevator roof composite deck Infill composite deck 2" -- 18 GA. 1 1/2" -- 20 GA. I = 0.559 in 4/ftI = O.222 in 4/ftSp = 0.224 in3/ftSp = 0.495 in 3/ftSn = 0.504 in 3/ftSn = 0.231 in 3/ft

6.Deck units shall be lapped only at supports. 7. Roof deck at new canopy shall be wide rib, galvanized metal roof deck with following minimum properties:

1 ½" Type B -- 20 GA. I = 0.212 in 4/ftSp = 0.234 in 3/ft

Sn = 0.347 in 3/ft8. Weld roof deck to supporting members according to manufacturer's recommendations. Deck and welds shall have a

minimum design diaphragm strength of 300 plf. 9. Provide reinforcing channels, standard closures, cant strips, sump pans, finish strips, pour stops, and other accessories as shown on drawings and as required.

FULLY SPRINKLERED BID DOCUMENTS

Drawing Title Project Title CONSULTANTS: ARCHITECTS/ENGINEERS: Office of 542-13-105 **GENERAL NOTES** BUILDING 9 -SECOND FLOOR RENOVATION Building Number Construction and Facilities A E works Location: 1400 Blackhorse Hill Road Approved: Project Director Management Coatesville, PA 19320 HOPE FURRER 6587 HAMILTON AVENUE Checked d Design and Consulting for Architectural Projec PITTSBURGH, PA 15206 SLS PH: 412.287.7333 FAX: 412.287.7334 Revisions: Date www.ae-works.con